What is claimed is:

1   1.   A method for sending a data packet, the method comprising:

2   receiving an original data packet characterized by a fixed-length packet format

3   defining an address field and a data field, the original data packet carrying original data

4   packet routing information in the address field and original data packet data information

5   in the data field;

6   constructing a remnant packet characterized by the fixed-length packet format

7   including a remnant packet data field and a remnant packet address field by inserting at

8   least a portion of the original packet routing information in the remnant packet data field;

9   and

10   sending the remnant packet.

1   2.   The method of claim 1, wherein constructing a first remnant packet further

2   comprises:

3   inserting a first portion of the original data packet data information in the remnant

4   packet data field.

1   3.   The method of claim 2, further comprising:

2   when the original data packet and a prior original data packet form part of a

3   common message, inserting at least a portion of a prior original data packet data field in

4   the remnant packet data field.

1   4.   The method of claim 1, further comprising constructing a subsequent

2   remnant packet characterized by the fixed-length packet format by inserting a second

3   portion of the first data information in the data field of the subsequent remnant packet.

1   5.   The method of claim 4, further comprising:

2   receiving a subsequent original data packet characterized by the fixed-length

3   packet format, the subsequent original data packet carrying subsequent original data

4   packet routing information in the address field; and

5   inserting at least a portion of the subsequent original packet routing information in

6   the data field of the subsequent remnant packet.

1   6.   The method of claim 1, wherein:

2   receiving an original data packet comprises receiving an original ATM cell

3   including a VCI; and

4   constructing a remnant packet further comprises inserting the VCI from the

5   original ATM cell in the data field of the remnant packet.

1   7.   The method of claim 1, further comprising:

2   when the address field of the original data packet includes sufficient available

3   space for subsequent routing of the original data packet in an intermediate network,

4   sending the original data packet without constructing and sending the remnant packet.

1   8.   The method of claim 1, further comprising setting a remnant packet flag in

2   the remnant packet.

1   9.   A method for receiving a data packet comprising:

2   receiving a current remnant packet characterized by a fixed-length packet format

3   defining an address field and a data field, the current remnant packet carrying remnant

4   routing information in the address field and remnant data information in the data field;

5   and

6   building a reconstructed data packet characterized by the fixed-length packet

7   format by:

8   identifying original data packet routing information contained in the data field of

9   the current remnant packet; and

10   inserting the original data packet routing information in the address field of the

11   reconstructed data packet.

1   10.   The method of claim 9, wherein building a reconstructed data packet

2   further comprises:

3   identifying original data packet data information contained in the data field of the

4   current remnant packet; and

5   inserting at least a first portion of the original data packet data information in the

6   data field of the reconstructed data packet.

1   11.   The method of claim 10, further comprising storing at least a portion of

2   original data packet data information from a prior remnant packet in the data field of the

3   reconstructed data packet.

1   12.   The method of claim 9, wherein building a reconstructed data packet

2   further comprises:

3   when the current remnant packet and a prior remnant packet form part of a

4   common message, storing at least a portion of prior remnant packet data information in

5   the data field of the reconstructed data packet.

1   13.   The method of claim 12 further comprising comparing the remnant routing

2   information to stored packet routing information to determine when the prior remnant

3   packet and the current remnant packet form part of the common message.

1   14.   The method of claim 11, further comprising:

2   receiving a subsequent remnant packet;

3   inserting a first portion of data information from the data field of the subsequent

4   remnant packet in the data field of the reconstructed data packet; and

5   constructing a second reconstructed data packet according to the fixed-length

6   packet format by:

7   identifying subsequent original data packet routing information contained in the

8   data field of the subsequent remnant packet;

9   inserting the subsequent original data packet routing information in the address

10   field of the second reconstructed data packet; and

11   inserting at least a second portion of data information from the data field of the

12   subsequent remnant packet in the data field of the second reconstructed data packet.

1   15.   The method of claim 9, wherein receiving a first remnant packet

2   comprises:

3   receiving a data packet;

4   determining if the data packet is a remnant packet; and

5   when the data packet is not a remnant packet, sending the data packet without

6   building a reconstructed data packet.

1   16.   The method of claim 9, wherein:

2   receiving a remnant packet comprises receiving a remnant ATM cell; and

3   constructing a reconstructed data packet comprises:

4   constructing a reconstructed ATM cell;

5   retrieving a VCI from the data field of the remnant ATM cell; and

6   inserting the VCI in the VCI field of the reconstructed ATM cell.

1   17.   A communication network node comprising:

2   a receiver for receiving an original data packet characterized by a fixed-length

3   packet format defining an original address field and an original data field; and

4 a processor coupled to said receiver and operable to construct a remnant packet

5 according to the fixed-length packet format including a remnant address field and a

6 remnant data field, by moving at least a portion of the original address field into the

7 remnant data field.

1 18. The communication network node of claim 17, wherein the remnant data

2 field further includes a first portion of the original data field, and further comprising a

3 memory coupled to the processor for storing a second portion of the original data field.

1 19. The communication network node of claim 17, wherein the remnant data

2 field comprises at least a portion of a prior original data packet.

1 20. The communication network node of claim 17, wherein said fixed-length

2 packet format is ATM, and the remnant data field comprises at least a portion of a VCI

3 from the original data packet.

1 21. The communication network node of claim 17, wherein the processor is

2 operable to send the original data packet without first constructing a remnant packet

3 when the original address field includes sufficient available space for subsequent routing

4 in an intermediate network.

1   22.   The communication network node of claim 17, wherein the remnant

2   packet comprises a remnant packet flag.

1   23.   A communication network node comprising:

2   a receiver for receiving a remnant packet characterized by a fixed-length packet

3   format defining a remnant address field and a remnant data field, the remnant address

4   field comprising remnant packet routing information and the remnant data field

5   comprising original data packet routing information and original data packet data

6   information; and

7   a processor operable to form a reconstructed data packet characterized by the

8   fixed-length packet format including a reconstructed address field and a reconstructed

9   data field, the reconstructed address field comprising original packet routing information

10   from the remnant data field.

1   24.   The communication network node of claim 23, wherein the reconstructed

2   data field comprises at least a portion of the original data packet data information.

1   25.   The communication network node of claim 23, wherein the processor is

2   further operable to insert stored data information from a prior associated remnant packet

3   in the reconstructed data field.

1   26.   The communication network node of claim 23, wherein said receiver

2   receives a subsequent remnant packet including a subsequent data field, and said

3   processor forms a subsequent reconstructed data packet according to the fixed-length

4   packet format, including a subsequent reconstructed data field comprising original data

5   packet data information from the remnant packet and at least a portion of the subsequent

6   data field.

1   27.   The communication network node of claim 23, wherein the processor is

2   further operable to send the received data packet without constructing a reconstruction

3   data packet when the received data packet is not a remnant packet.

1   28.   The communication network node of claim 23wherein said remnant

2   packet is an ATM cell, and said reconstructed data packet is an ATM cell comprising a

3   VCI field including VCI information from the remnant data field..